

SUMMARY

Pulses constitute the main source of protein for developing countries like India where per capita consumption of the animal protein is low and due to their high protein quantity and quality they are considered the **poor man's meat**. Therefore, studies on taxonomy, ecology, biology, biocontrol, morphology, karyology, polymorphism, nature and quantum of damage, and other safe protective measure of these pests attacking agro as well as forest ecosystem have become increasingly important with increased efficiency of detecting ways showing the presence of insects and their residues in stored food grain as well as in forest products. Similarly the forest ecosystem not only supply us clean oxygenated air but yield food, fodder, fruits, timber, furniture, gums, resins, medicines etc. Therefore, studies on biodiversity, biology, bionomics and safer control of bruchid species infesting agro ecosystem and forest ecosystem are very important. Therefore, my areas of research regarding exploration of the new taxa, their biology and economic feasible and ecological viable methods of control measures of stored grain pests is increasingly important for the safe guard of our legume commodities for protein enrichment of our staple food and to replenish the malnutrition for the betterment the mankind. My efforts of blending of indigenous traditional knowledge with advanced technology in '**Integrated Crop Management**'(ICM) in this area will contribute to bring second "**Green Revolution**" in India and to protect and preserve the agro and forest ecosystem diversity for the welfare of future generation of living beings.

WORK DONE SO FAR IN THIS FIELD

1. In recent years an increased attention towards non-chemical methods of stored product protection has been drawn because chemical control is often not affordable for subsistence farming, whereas the chemicals which are available pose a serious health risk due to lack of appropriate facilities and knowledge and training also. Therefore, biological control can be the simpler, environmentally innocuous, self-regulatory, long lasting and relatively inexpensive mode to keep pest population below economic injury level by inoculating the stores and fields by their natural enemies. The most significant work done so far is exploration and assessment of the biotic potential of many entomophagous and bio efficacy of entomopathogenic diversity to regulate the active population of insect pests in general and stored grain pests in particular.
2. Since the domestication and diffusion of beans, many bruchid species have crossed the geographical boundaries and becoming cosmopolitan in distribution through human-mediated migrations and import and export of food grain consignments, thus posing major pests problem in fields and granaries worldwide. *Acanthoscelides obtectus* (Say) (Coleoptera: Bruchidae) a

Neotropical originated serious pest species of kidney beans and various other legume commodities in America, Australia, Africa, Europe and some Asian countries, has crossed the geographic boundaries and reported for the first time from the mid - Himalayan range of Indian subcontinent. This insect pest has been found infesting different cultivars of kidney beans in the region and its invasion in the Indian Himalaya reveals that this pest species has now occupied almost all the continents of the world except Antarctica and is a big leap in the research of agricultural entomology.

3. Bruchids are cosmopolitan in distribution and completely associated with wild and cultivated legumes worldwide. These chunky beetles spoil the valuable share of legume proteins which otherwise be eaten by human being, thus competing with the normal life of the mankind especially in the developing countries, where per capita consumption of animal proteins is very low. *Callosobruchus theobromae* (L.) (Coleoptera: Bruchidae) has been reported from *Glycine max*(L.) Merr., from Indian subcontinent but no significant loss done by this pest has been reported so far. We are pioneer to unveil the biology, pest status, host range of this pest on various comestible legumes viz. *Dolichos lab lab* L. syn. *Lablab purpureus* (L.) Sweet, *Glycine max* (L.) Merr., *P. aureus* Roxb. and *V. sinensis* (L.) Walp. Studies have been extended to observe the phenotypic variations and phase dimorphism exhibited by pest species during different seasons of a year and its developmental compatibility on different legume commodities and numbers of generations completed in a year are also explored.
4. I am pioneer to study the faunal diversity of internationally known Ramsar Site (No. 1569) “Chandertal” a wetland of national importance situated near the famous Kunzam Pass (4520 m amsl). This has now declared wildlife sanctuary and known for its unique characteristic and a few endangered flora and fauna. Falling in the 1 B Tibetan Plateau Biogeographic zones, this water reservoir has crystal clear water inhabits shrimps and larvae of trichopterans etc. thus serve an important abode for some endangered endemic faunal diversity.